

The Next Best Thing Teaching using Simulations

Why Simulations



Simulations give students the opportunity to

- Make Observations
- Identify and Alter Variables
- Test hypothesis
- Draw Inferences based on Observation
- Find patterns
- Actively engage in learning

An Important Consideration when using simulations is to check if the model behaves in the same way the phenomena or situations does. Encourage students to identify what assumptions/simplifications the model has made.

Planning the Lesson



What do you want them to learn?

- You should identify content the students should learn.
- What specific relationship(s)/pattern(s)/event(s) do what your students to understand.

How do students demonstrate their understanding?

- Engage in inductive reasoning to identify some principle.
- Create and complete data table
- Summarizing a pattern
- Extrapolate to solve problems
- Use deductive reasoning to predict future outcomes.

How do you want to asses student learning?

- science notebook
- collaboratively developed summary
- follow up questions.
- equation creation
- representing understanding in a different form. (create a graph, table,...)
- an analysis of alternative outcomes.

A Sample Activity

Goto

<http://phet-web.colorado.edu/simulations/projectilemotion/projectile.swf>

Create a data table and collect data to answer the following questions.

- what happens to the range as the launch speed increases?
- what happens to the range as the angle increases?

How are you going to show me you understand the relationship among launch angle, launch speed, and range?